

Amendments to the Claims

Please cancel Claim 2 without prejudice to or disclaimer of the subject matter recited therein.

Please amend Claims 1, and 3-18 to read as follows.

1. (Currently amended) An optical waveguide device comprising:
~~an a slab-type optical waveguide layer;[,] and~~
~~an a plurality of chips which include~~ optical input and output ports for
inputting and outputting an optical signal to and from the ~~slab-type optical waveguide~~
~~layer, wherein the an~~ optical input port receives an optical signal, ~~inputted from the output~~
~~by an~~ optical output port, ~~to from the slab-type optical waveguide layer~~ in accordance with
a timing control signal inputted ~~as an electrical signal to the optical input port using an~~
~~electrical connection between the plurality of chips.~~

2. (Cancelled)

3. (Currently Amended) An optical waveguide device according to
claim 1, wherein the optical input and output ports each comprise an optical element for
receiving or emitting a light in a direction nearly perpendicular to an optical waveguide
direction in the optical waveguide layer, and optical path changing means provided in a

desired position within the optical waveguide layer in correspondence to the optical element.

4. (Currently Amended) An optical waveguide device according to claim 3, wherein the optical path changing means is comprised of a optical reflector having a projection shape portion, the optical element is comprises a surface type element mounted to the optical waveguide layer in a state in which its central portion is aligned with the position of a vertex of the projection portion of the optical reflector, and each of the optical elements transmits and receives a signal to and from the whole area within the optical waveguide layer.

5. (Currently Amended) An optical waveguide device according to claim 3, wherein the optical path changing means is comprises an optical reflector having a projection shape portion, and wherein the optical element is comprises a surface type element mounted to the optical waveguide layer in a state in which its central portion is aligned with a position of the vertex of the projection portion of the optical reflector, and the optical element transmits and receives a signal to and from only a partial area within the optical waveguide layer.

6. (Currently amended) An optical waveguide device according to claim 2 1, wherein the optical waveguide layer is formed by laminating a plurality of layers.

7. (Currently Amended) An optical waveguide device according claim 1, wherein an optical signal originated from the side of the an optical output port is ~~constituted by~~ comprises a packet signal train formed of a finite pulse train, and wherein the timing control signal is individually sent as an instruction signal used to select adoption or rejection of the packet signal to the side of the optical input port to carry out time division packet switching to thereby switch an optical connection between the optical input and output ports.

8. (Currently Amended) An A device combining optical and electrical elements ~~combined device~~, comprising electrical circuits, ~~electrical~~ the plurality of chips for operating the electrical circuits, and the optical waveguide device according to claim 1, wherein a signal connection between the electrical chips is carried out using both an optical connection using the optical signal, and an electrical connection using at least the timing control signal used to control transmission and reception of the optical signal.

9. (Currently Amended) An A device combining optical and electrical elements ~~combined device~~ according to claim 8, wherein the optical input and output ports and the electrical chips are electrically connected to each other.

10. (Currently Amended) An A device combining optical and electrical elements ~~combined device~~ according to claim 8, wherein a part of or all of the electrical connection between the electrical chips is carried out using an electrical wiring formed on a

surface of the optical waveguide layer, or an electrical wiring formed on an electrical circuit substrate including the electrical circuits.

11. (Currently Amended) ~~An~~ A device combining optical and electrical elements ~~combined~~ device according to claim 8, wherein a plurality of slab-type optical waveguide layers constituting the optical waveguide layer are provided with optical input and output ports from the same electrical chip.

12. (Currently Amended) ~~An~~ A device combining optical and electrical elements ~~combined~~ device according to claim 8, wherein a plurality of connection terminals for surface mounting to other electrical circuit substrates are arranged on a surface of an electrical circuit substrate including the electrical circuits, and wherein the device takes a form of a chip size package.

13. (Currently Amended) A method of driving ~~the~~ a device combining optical and electrical elements ~~combined~~ device according to claim 8, comprising the steps of:

forming the optical signal transmitted from the side of the optical output port from a packet signal train formed of a finite pulse train;
individually transmitting the timing control signal as an instruction signal used to select adoption or rejection of a packet signal to the side of the optical input port to

carry out time division packet switching to thereby switch an optical connection between the optical input and output ports;

transmitting an electrical signal used to select adoption or rejection of the packet signal with a clock frequency depending on a repetitive period of a packet train from ~~the~~ an electrical chip for transmission; and

receiving an electrical signal pulse used to select adoption or rejection of the packet signal at a timing earlier than a packet train selected in ~~the~~ an electrical chip for reception to start capturing the packet signal at a timing of fall of the electrical signal pulse.

14. (Currently Amended) A method of driving ~~the~~ a device combining optical and electrical elements ~~combined~~ device according to claim 8, comprising the steps of:

forming an optical signal transmitted from the side of the optical output port from a packet signal train formed of a finite pulse train;

individually transmitting the timing control signal as an instruction signal used to select adoption or rejection of the packet signal to the side of the optical input port to carry out time division packet switching to thereby switch an optical connection between the optical input and output ports;

storing control patterns for the packet switching ~~are stored~~ in a memory provided inside or outside the optical and electrical elements combined device[:]; and

successively reading out the control patterns from the memory to control an operation of the device combining optical and electrical elements ~~combined~~ device.

15. (Currently Amended) A method of driving ~~the a~~ device combining optical and electrical elements ~~combined device~~ according to claim 13, wherein the electrical chip for transmission and the electrical chip for reception are successively changed in a time division manner if necessary.

16. (Currently Amended) A method of driving ~~the a~~ device combining optical and electrical elements ~~combined device~~ according to claim 13 or 14, wherein when optical signals are transmitted at the same time within the same optical waveguide layer from a plurality of electrical chips, light intensities of the optical signals from the plurality of electrical chips are made different from one another.

17. (Currently Amended) A method of driving ~~the a~~ device combining optical and electrical elements ~~combined device~~ according to claim 13 or 14, wherein the control patterns for the packet switching are rewritable by being downloaded ~~as an~~ intellectual property from the outside of the device combining optical and electrical elements ~~combined device~~, and the operation of the device combining optical and electrical elements ~~combined device~~ is switched concurrently with the download.

18. (Currently Amended) An electronic ~~equipment~~ device embedded in the device combining optical and electrical elements ~~combined~~ device as claimed in any one of claims 9 to 12 ~~which makes it possible that~~ for enabling a high-speed optical connection between electrical chips ~~can to~~ be freely reconfigured, the ~~equipment~~ device being so constructed that connections among a plurality of embedded systems can be switched at a high speed with one ~~equipment~~ device.